

UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of
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Lisa Toth and Suzi Rines Toth

Serial No.
(A divisional application
of application Serial No. 08/901,501
filed July 28, 1997

Art Unit: 1616

Examiner: Pak, T.

Filed: Herewith

For: METHOD OF AND PRODUCTS FOR PROMOTING IMPROVED GROWTH
OF PLANTS AND MORE WATER-EFFICIENT GROWING SOIL OR OTHER
MEDIA AND THE LIKE WITH ZEOLITE CRYSTALS TREATED WITH PRE-
FERABLY WATER-BASED PLANT-DERIVED NUTRIENT EXTRACTIONS
AND THE LIKE

Hon. Commissioner of Patents
and Trademarks
Washington, DC 20231

Dear Sir:

This application, a divisional application, is filed pursuant to an earlier
requirement for restriction in the parent application of the above-identified application.

The claims of this divisional application are as follows:

- 1. A water-releasing ice-crystal-like-appearing gel for use with plant material,
constituted of polyacrylate polymer powder gelled in an aqueous plant nutrient
solution with entrapped water-insoluble polyacrylate crystals dispersed therein.
2. The gel of claim 1 wherein the gel further contains zeolite crystals embedded
therein.
3. The gel of claim 1 wherein the plant nutrient solution is selected from the group
consisting of plant-derived extracts and of water-based chemical nutrients.
4. The gel of claim 3 wherein the plant-derived extracts are from plants selected
from the group consisting of Artemesia plants, Rosmarinus officinales,
Balsamum, Cismamomium, and Camphora.
5. The gel of claim 3 wherein the plant-derived extracts are extractions from
Artemesia plants.
6. The gel of claim 5 wherein the Artemesia plants are one of arborescens and
tridentata.

7. The gel of claim 3 wherein the water-based chemical nutrients are $N_2-P_2O_5$.
8. The gel of claim 1 wherein about $\frac{1}{4}$ teaspoon of the polyacrylate polymer powder was added to about 4 ounces of the nutrient solution.
9. A method of making a water-releasing ice-crystal-like-appearing gel for use with plant material, that comprises, producing an aqueous plant nutrient solution; and adding sufficient polyacrylate polymer powder to the aqueous plant nutrient solution to create a gel with water-insoluble polyacrylate crystals entrapped therein.
10. The method of claim 9 wherein zeolite crystals are embedded in the gel.
11. The method of claim 9 wherein the gel is readily spreadable within the plant-receiving medium.
12. The method of claim 9 wherein the plant nutrient solution is selected from the group consisting of plant-derived extracts and of water-based chemical nutrients.
13. The method of claim 12 wherein the plant-derived extracts are extractions from Artemesia plants.
14. The method of claim 12 wherein the water-based chemical nutrients include $N_2-P_2O_5$.
15. The method of claim 9 wherein about $\frac{1}{4}$ teaspoon of polyacrylate polymer powder is added to about 4 ounces of the nutrient solution.
16. The method of making a water-releasing ice-crystal-like-appearing gel for use with plant material, that comprises, producing an aqueous plant nutrient solution; dispersing zeolite crystals in the solution to absorb the nutrients; and adding polyacrylate polymer powder to the solution to create a gel with the zeolite crystals absorbed therein.
17. The method of claim 16 wherein the gel is dispersed in plant-growing soil and the volume ratio of soil to zeolite crystals is adjusted to up to about 1-0.3.
18. The method of making and using a water-releasing ice-crystal-like-appearing gel for use with plant material, that comprises, forming a polyacrylate polymer gel by adding water -insoluble but super-absorbent polyacrylate polymer powder to an aqueous solution; spreading the gel when formed within a plant-receiving

medium; and releasing over time the absorbed water of the gel to the plant within said medium.

19. The method of claim 18 wherein said aqueous solution comprises a water-based solution of a plant nutrient.
20. The method of claim 19 wherein said plant nutrient is an extract of an Artemesia plant.
21. A method of promoting plant growth in soil, that comprises, thoroughly mixing in the soil a water-insoluble, but super-absorbing polyacrylate polymer powder additive, and watering the soil to moisturize the soil and also to enable moisture absorption by said additive and thus the subsequent controlled water-release by said additive into the soil over time.
22. The method of claim 21 wherein the polyacrylate polymer additive contains a distribution of 45-1000 micron polyacrylate powder.
23. The method of claim 21 wherein the polyacrylate polymer additive is mixed in said soil in the proportion of about 1% of the soil volume.
24. The method of claim 21 wherein said watering includes the use of a water-solution of plant nutrient materials.
25. The method of claim 24 wherein the plant nutrient materials are selected from the group consisting of plant-derived nutrient extracts and/or chemical nutrient solutions.
26. The method of claim 25 wherein the plant-derived nutrient extracts are selected from the group consisting of Artemesia plants, Rosmarinus officinales, Balsamum, Cismamomium, and Camphora.
27. The method of claim 26 wherein the plant-derived nutrient extract is selected from one of Artemesia arborescens and tridentata.
28. The method of claim 25 wherein the chemical nutrients include $N_2-P_2O_5$.
29. The method of claim 21 wherein zeolite crystals are also dispersed throughout the soil.
30. The method of claim 29 wherein said zeolite crystals, prior to dispersing in the soil, are immersed in a water-based plant-nutrient solution to absorb the nutrient therein.

31. The method of claim 29 wherein the volume ratio of soil to zeolite crystals is up to about 1.-0.3.
32. The method of claim 21 wherein sufficient polyacrylate polymer powder is added to the watering to create a gel having ice-crystal-like-appearance and with water-insoluble polyacrylate crystals entrapped therein.
33. The method of claim 32 wherein the gel is spread throughout the soil.
34. The method of claim 32 wherein about $\frac{1}{4}$ teaspoon of the polyacrylate polymer powder is used in about 4 ounces of the watering.
35. The method of claim 32 wherein said watering includes the use of a water-solution of plant nutrient materials.
36. The method of claim 35 wherein the plant nutrient materials are selected from plant-derived nutrient extracts and/or chemical nutrient solutions.
37. The method of claim 36 wherein the plant-derived nutrient extracts include extracts from Artemesia plants.
38. The method of claim 36 wherein the chemical plant nutrient comprises $N_2-P_2O_5$.

Any costs incurred by this filing, including for any required extension(s) of time, petition for which is hereby made, may be charged to Deposit Account 18-1425 of the undersigned attorneys.

Respectfully submitted,

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